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Masashi EGUCHI et al.

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For: FACSIMILE SERVER, ELECTRONIC MAIL
DEVICE, AND COMMUNICATION METHOD

**TRANSMITTAL OF CERTIFIED
TRANSLATION OF PRIORITY DOCUMENT**

Mail Stop Amendment
Commissioner for Patents
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Dear Sir:

Enclosed herewith is a certified translation of Japanese patent application No. 2000-243745 which was filed August 11, 2001, from which priority is claimed under 35 U.S.C. § 119 and Rule 55.

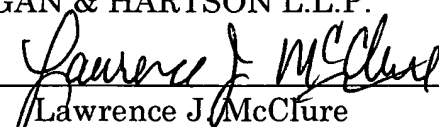
Acknowledgment of the priority document(s) is respectfully requested to ensure that the subject information appears on the printed patent.

Respectfully submitted,

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Date: April 25, 2005

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CERTIFICATION OF TRANSLATION

I, Asako Tozuka, having my place of business at Murata Kikai Kabushiki Kaisha, Headquarter Factory, 136-banchi, Takeda-Mukaishiro-cho, Fushimi-ku, Kyoto-shi, Kyoto, Japan, hereby certify that the attached document is a true and accurate translation of Japanese Patent Application No. 2000-243745.

Dated this 8th day of April, 2005 at Kyoto, Japan.

Asako Tozuka

(signature of translator)

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[List of Filing Documents]

[Name of Document] Specification 1

[Name of Document]	Drawing	1
[Name of Document]	Abstract	1
[General Power of Attorney No.]		9804018
[Necessity of Proof]	Necessary	

[Document Name] Specification

[Title of the Invention] FACSIMILE SERVER AND

COMMUNICATION METHOD USING THE SERVER

[Scope of Claim for Patent]

[Claim 1] A facsimile server, which is connected to an electronic mail server via a LAN, comprising means for referring for a size of electronic mail addressed to the facsimile server which arrived at the electronic mail server and comparing with a receivable size, and means for receiving the electronic mail by a packet and sending the electronic mail as error electronic mail by the packet to a designated address when the size of the incoming electronic mail exceeds the receivable size.

[Claim 2] The facsimile server according to claim 1, wherein the designated address is a transmission source of the incoming electronic mail or an information processing device which belongs to a manager of the LAN.

[Claim 3] A communication method for receiving electronic mail by connecting a facsimile server to an electronic mail server via a LAN, the communication method using the facsimile server comprising the steps of referring for a size of the electronic mail addressed to the facsimile server which has arrived at the electronic mail server, comparing with a receivable size, and receiving the electronic mail by a packet and sending the electronic mail as error electronic mail by the packet to a designated address when the size of the incoming electronic mail exceeds the receivable size.

[Detailed Description of the Invention]

[0001]

[Field of the Invention]

The present invention relates to a facsimile server for establishing a connection with an electronic mail server, and in particular, the present invention relates to a processing when the electronic mail of unprocessable data size addressed to the facsimile server reaches the electronic mail server.

[0002]

[Related Art]

In the Internet facsimile, a facsimile server is connected to a LAN, and a facsimile is transmitted and received via an electronic mail server in electronic mail form. The facsimile server is a G3 facsimile machine or the like to which a LAN interface is added, for instance.

[0003]

[Problems of the Related Art]

While an electronic mail server is generally provided with a high-capacity auxiliary storage, a storage capacity of a facsimile server which does not often exchange large-scale data is generally small. Therefore, it is impossible for the facsimile server to process received electronic mail which exceeds the storage capacity of the facsimile server.

[0004]

[Problems to be Solved by the Invention]

According to an aspect of the present invention, when electronic mail exceeding a receiving ability of the facsimile server arrives at the electronic mail server, by sending the electronic mail to a designated address, the electronic mail can be processed at the designated address (claims 1-3).

[0005]

[Constitution of the Invention]

The present invention is a facsimile server, which is connected to an electronic mail server via a LAN and includes means for referring for size of electronic mail addressed to the facsimile server which arrived at the electronic mail server and comparing with a receivable size and means for receiving the electronic mail by a packet and sending as error electronic mail by the packet to a designated address when the size of the incoming electronic mail exceeds the receivable size (claim 3).

[0006]

Preferably, the designated address is a sending side of the incoming electronic mail or an information processing device which belongs to a LAN manager (claim 2).

[0007]

The present invention is a communication method in which a facsimile server is connected to an electronic mail server via a LAN to receive electronic mail. This method includes the steps of referring for a size of electronic mail addressed to the facsimile server which arrived at the electronic mail server, comparing with a receivable size, receiving the electronic mail by the packet when

the size of the incoming electronic mail exceeds the receivable size, and sending the electronic mail as error electronic mail by the packet to a designated address (claim 3).

[0008]

[Operation and Effect of the Invention]

According to the invention of claims 1 and 3, the electronic mail, which cannot be received due to an excess of the size, is received by the packet and, for example, the electronic mail is re-sent to a designated address as the error electronic mail by the received packet. Therefore, there is no fear that a system error may occur due to electronic mail exceeding receivable size even in a facsimile server having limited memory capacity. Moreover, an electronic mailbox does not keep the electronic mail for hours, so that such a burden is not imposed on an electronic mail server. In addition, the error electronic mail can be processed at the receiving spot to which the error electronic mail is re-sent.

[0009]

According to the invention of claim 2, a receiver's address of the error electronic mail is a transmission source of the incoming electronic mail or an information processing device belonging to a LAN manager. The incoming electronic mail is sent back to the sending side as the error electronic mail, so that the sending side knows which electronic mail has failed to be received at the receiver's address and it is possible to divide the electronic mail to re-send. Alternatively, the error electronic mail is forwarded to the information processing device belonging to the LAN manager,

so that the manager or the manger's information processing device can return the electronic mail to the sender of the electronic mail as non-receivable electronic mail or delete the electronic mail in case of junk electronic mail.

[0010]

[Embodiment]

FIG. 1 through FIG. 3 show an embodiment. In FIG. 1, a facsimile server 2 is connected via a LAN 6 to an electronic mail server 4, a router 7, a personal computer 8 on the LAN, and so on. The personal computer 8 belongs to a manger managing the LAN 6 and is provided with an administration tool of the LAN. The router 7 connects the Internet 10 to the LAN 6, and an Internet facsimile device 12 is implemented with a combination of the electronic mail server and the facsimile server, for instance. 14 designates a personal computer connected to the Internet 10. Further, the Internet 10 includes a WAN and the LAN connected to the Internet besides the worldwide scale Internet itself. In Fig. 1, a transmitting channel of the electronic mail which is sent from the Internet facsimile device 12 to the facsimile server 2 and the error electronic mail is shown with arrows.

[0011]

Facsimile data converted to an electronic mail format is illustrated at the upper right in FIG. 1. A header including a destination address (in the drawing, James), a sender address (in the drawing, Henry), a sending date and time, an ID number of the electronic mail or the like, is accompanied by proper text. An

attached file includes image data which is the body of the facsimile data. James of the destination address is a name of the facsimile server 2, and Henry of the sender address is a personal computer in the LAN 6, the Internet facsimile device 12 connected via the Internet 10, the personal computer 14 or the like.

[0012]

At the lower left in FIG. 1, a data format of the error electronic mail is shown when returning the electronic mail, which cannot be received as a whole due to exceeding the receivable size, to the sender by the same packet after receiving the electronic mail by the packet. In the header of the error electronic mail, a destination address (in the drawing, Henry, which is the transmission source of the electronic mail) and a name of the facsimile server which is a sender of the error electronic mail (in the drawing, James) are entered, and following a word "In-Reply-To", an ID number of the incoming electronic mail is entered. By doing this, the sender ascertains which electronic mail has failed to be received normally. A destination address may be the personal computer 8 or the like belonging to the manager of the LAN 6 and a computer program stored in the personal computer 8 or the manager himself may process the error electronic mail. For instance, the manager of the LAN 6 can carry out processing such as returning the electronic mail to the sender as non-receivable electronic mail or deleting the electronic mail as junk electronic mail.

[0013]

The proper text of the error electronic mail, which has a message such as "The electronic mail was unable to be normally received due to an excess of a size" and a header of the original electronic mail or the like, indicates that the electronic mail was unable to be received due to an excess of a size. The attached file of the error electronic mail is accompanied by the proper text of the original electronic mail and image data.

[0014]

In FIG. 2, the structure of the facsimile server 2 is shown. 20 designates a Central Processing Unit (CPU), and 21 designates a RAM with a capacity of the approximately 16 to 128 Mbytes to store data such as image data and data in processing, and the available capacity of the RAM fluctuates at all times. 22 designates a ROM to store a program etc., 23 is a scanner for inputting an image, and 24 is a printer for a hardcopy. 26 designates a Network Control Unit for connection to the Public Switched Telephone Network, 27 is a modem, and 28 is an operating/displaying unit provided with a keyboard and a display panel such as a LCD. 29 designates a CODEC to perform encoding and decoding to compress redundancy for communication, 30 is a LAN interface for connection to the LAN 6.

[0015]

The communication on the Internet facsimile and the LAN 6 is conducted with the LAN interface 30, and the communication is conducted in the electronic mail form. The electronic mail has a header entering a destination address, a sender address and so on. The electronic mail also has proper text (in the case of the error

electronic mail, the text would be a message "The electronic mail was unable to be received due to an excess of a size" etc.) and an attached file whose facsimile data (image data) is converted from binary data to a data format for the Internet. A header represents a header in a narrow sense in this specification, but the combination of a header and proper text may be regarded as a header to an attached file.

[0016]

The LAN interface 30 is connected via the LAN 6 to the electronic mail server 4 and the personal computer 8 of the LAN manager or the like. A capacity control unit 32 as a subsystem of the LAN interface 30 detects an image data size which can be stored in the RAM 21 (a size of an available capacity) and refers to the electronic mail server 4 for presence or absence of electronic mail addressed to the facsimile server 2 and a data size. When the data size of the electronic mail which reached the electronic mail server 4 exceeds the image data size which can be stored in the RAM 21, the capacity control unit 32 outputs such a fact to a receiving control unit 33, a return/forward information extraction unit 34, and a transmitting control unit 35.

[0017]

The receiving control unit 33 manages the receipt of the electronic mail which reached the electronic mail server 4. The return/forward information extraction unit 34 creates a destination address to return or forward the electronic mail and extracts a return address from the header of the incoming electronic mail,

for instance. The transmitting control unit 35 manages the transmission of the electronic mail. In normal times, the receiving control unit 33 manages the receipt of the electronic mail, the return/forward information extracting unit extracts or creates a return address or a forwarding address, and the transmitting control unit 35 manages the transmission of the electronic mail.

[0018]

When the incoming electronic mail cannot be received as it is because of the excessive size, the receiving control unit 33 makes the electronic mail server 4 receive the electronic mail by the packet, and the return/forward information extraction unit 34 creates a return address or a forwarding address. For example, when the facsimile server 2 is set in "forward" position as a measure against the excess size, the LAN 6 manager's address stored in the LAN interface 30 is chosen as the forwarding address. On the other hand, in the case that the facsimile server 2 is set in "return" position, a sender's address is extracted from the header of the incoming electronic mail and regarded as a return address. The data in the header of the error electronic mail is extracted from the header of the incoming electronic mail by the return/forward information extraction unit. The transmitting control unit 35 manages the transmission of the received packet by the same packet as it is to the address created or extracted by the return/forward information extraction unit. Therefore, the excess size electronic mail is received by the packet and sent again by the

packet on the spot to clear memory used for the receipt of the electronic mail, so that it is possible to carry out reception without wasting memory. The message such as "The electronic mail was unable to be received due to an excess of a size" in the proper text of the error electronic mail is created in the transmitting control unit 35, etc.

[0019]

FIG. 3 illustrates the operation of the embodiment. The electronic mail addressed to the facsimile server, which the electronic mail server has received, is saved in the electronic mailbox in the electronic mail server. The facsimile server 2 refers to the electronic mail server for presence or absence of the received electronic mail and the data size (step 1), checks the condition of the RAM etc., and determines the available amount of storage (the size of receivable electronic mail) as a designated value (step 2). When the data size of the electronic mail which has reached the electronic mail server is smaller than the designated value (step 3), the electronic mail is received as usual (step 4).

[0020]

In the case that the data size of the incoming electronic mail is larger than the designated value, if the setting of return or forward position is not made in the server (step 5), since the facsimile server does not receive the electronic mail from the electronic mailbox, the electronic mail remains in the electronic mailbox, and for instance, the electronic mail is deleted by the

LAN manager. If "return" position is chosen as a setting (step 6), the sender's electronic mail address is extracted from the header, and the header of the error electronic mail is prepared with the sender as the destination (step 7). If "forward" position is chosen as a setting, the header of the error electronic mail is prepared with the LAN manager's personal computer as the destination (step 8). Then, connection to a SMTP server for transmission in the electronic mail server is carried out to prepare for transmission (step 9). The electronic mail in the electronic mailbox of the electronic mail server is received by the packet (step 10), and then re-sent by the packet as it is to the sender or the forwarding address (step 11). The memory used for the reception is then cleared (step 12). The steps of receiving the electronic mail by the packet, transmission, and clearing the memory are repeated until receiving data from the electronic mail server 4 is completed (step 13).

[0021]

When the returning or the forwarding of the error electronic mail is set in the facsimile server, since the electronic mail can be extracted from the electronic mail server to be returned or forwarded, the electronic mail does not remain at the electronic mail server for a long period of time. The facsimile server receives the excess size electronic mail by the packet and returns or forwards the electronic mail as it is by the packet, so that it is possible to receive and re-send the electronic mail easily. Since it is possible to process the received electronic mail at the returned address or the forwarding address of the electronic mail, measures

can be taken such as dividing the original electronic mail to perform resending from the returned address in the case of important information.

[Brief Description of the Drawings]

[FIG. 1] FIG. 1 is a block diagram showing a connection of a facsimile server according to an embodiment.

[FIG. 2] FIG. 2 is a block diagram showing composition of the facsimile server of the embodiment.

[FIG. 3] FIG. 3 is a flowchart showing a process of receiving, returning or forwarding when a size of electronic mail is larger than a designated value in the facsimile server of the embodiment.

[Description of the Reference Numerals]

- 2 facsimile server
- 4 electronic mail server
- 6 LAN
- 7 router
- 8, 14 personal computer
- 10 Internet
- 12 Internet facsimile device
- 20 CPU
- 21 RAM
- 22 ROM
- 23 scanner
- 24 printer

- 26 NCU
- 27 modem
- 28 operating/displaying unit
- 29 CODEC
- 30 LAN interface
- 32 capacity control unit
- 33 receiving control unit
- 34 return/forward information extraction unit
- 35 transmitting control unit

[Document Name] Abstract

[Abstract]

[Problem] When electronic mail of a data size exceeding a storage capacity of a facsimile server is sent, the facsimile server cannot receive the electronic mail.

[Constitution] The facsimile server refers to an electronic mail server for the data size of the electronic mail, and detects a receivable data size. When the data size of the electronic mail is excessive, the facsimile server receives the electronic mail by a packet and sends the electronic mail by the packet to a forwarding address or a transmission source of the electronic mail.

[Selected Drawing] FIG. 3

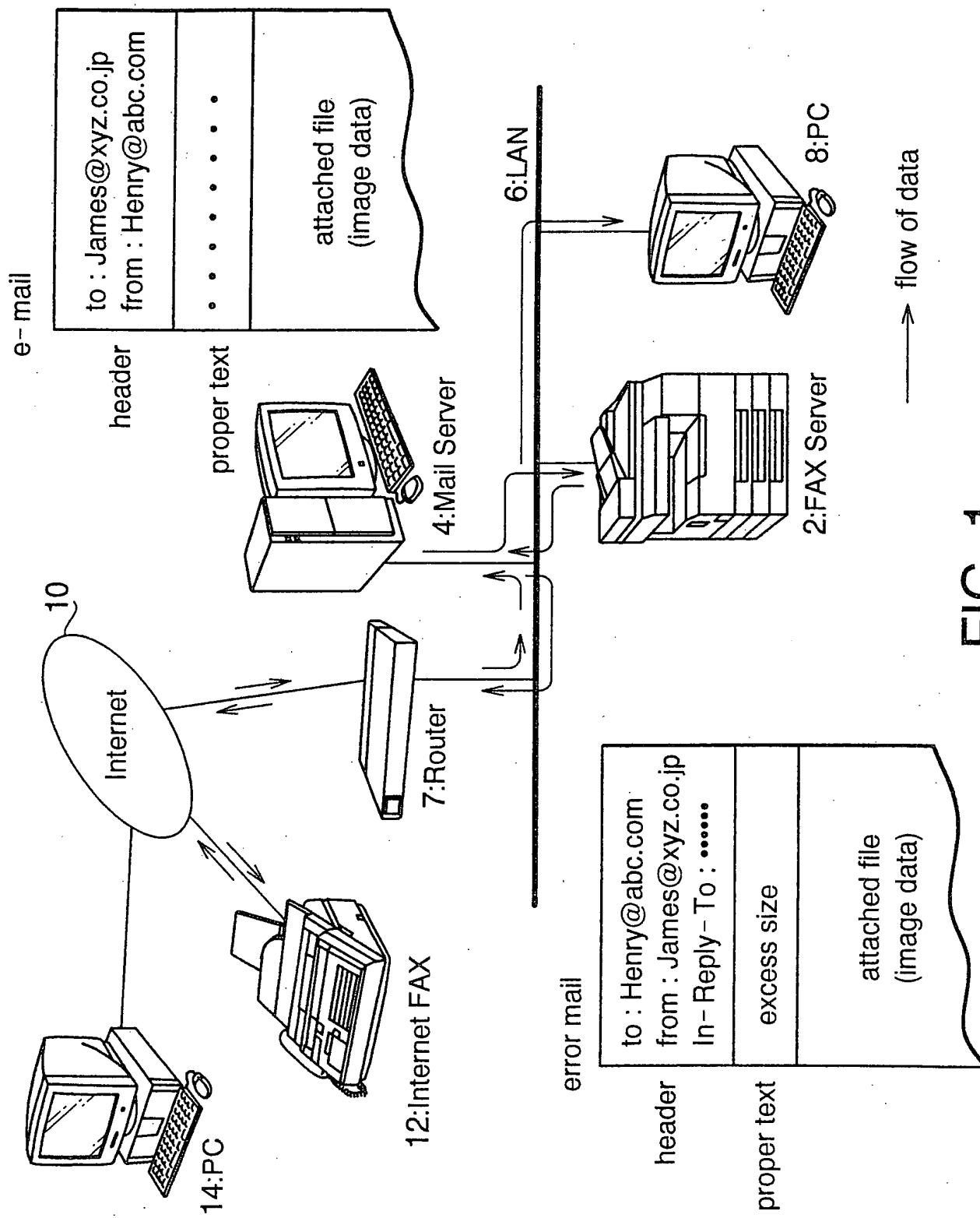


FIG. 1

FIG. 2

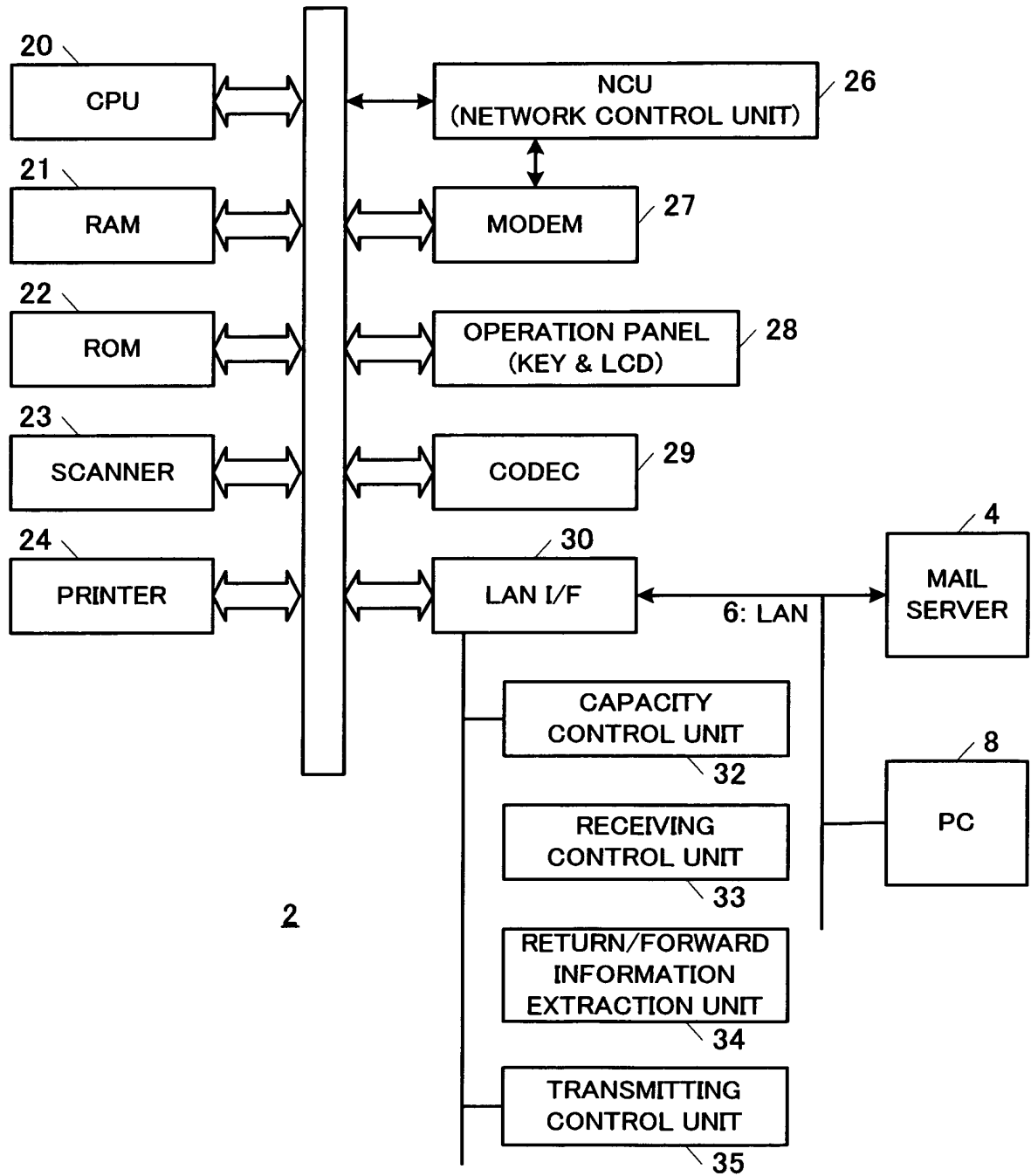


FIG. 3

